We Claim:

1. A lithium based electrochemical device comprising

at least two porous electrodes,

said electrodes include expanded metal microgrids having active materials coated thereon,

at least one porous ceramic separator between said electrodes,

said separator having one side in bonding contact with said first electrode active material,

an organic ion-conductive adhesive layer on the other side of said separator in adherent contact with said separator and said other electrode,

a non-aqueous electrolyte in contact with said electrodes, and said separator, and

an enclosure surrounding and containing said device.

2. An electrochemical device as defined in claim 1, in which said electrodes are an anode and a cathode.

3. An electrochemical device as defined in claim 1, in which said separator contains particles of an electrically insulating material and a binder.

4. An electrochemical device as defined in claim 3, in which said particles are alpha alumina particles.

5. An electrochemical device as defined in claim 3, in which

said particles are inorganic lithium fluoride particles.

6. An electrochemical device as defined in claim 3, in which said particles are inorganic fluoride particles.

7. An electrochemical device as defined in claim 3, in which said particles are a mixture of inorganic fluoride and alumina particles.

8. An electrochemical device as defined in claim 1, in which said adhesive is PVDF/HFP copolymer based and contains at least one aprotic liquid and at least one salt.

9. An electrochemical device as defined in claim 1, in which said adhesive is PVDF homopolymer based and contains at least one aprotic liquid and at least one salt.

10. An electrochemical device as defined in claim 1, in which said electrolyte is high boiling and essentially non-flammable.

11. An electrochemical device as defined in claim 1, in which said electrolytes contain a binder.

12. An electrochemical device as defined in claim 3 and 11, in which

said separator binder is of a different polymer than said electrodes' binders, and uses a different solvent.

13. An electrochemical device as defined in claim 1, in which said device is a bi-cell.

14. An electrochemical device as defined in claim 1, in which said device is a capacitor.

15. An electrochemical device as defined in claim 1, in which said device is a supercapacitor.

16. An electrochemical device as defined in claim 1, in which said device is a double layer capacitor.

17. An electrochemical device as defined in claim 1, in which said at least one electrode is smaller than said separator.

18. An electrochemical device as defined in claim 1, in which said separator comprises a mixture of N-methylpyrrolidinone in the range of 40 to 60% by percentage weight, polyvinylidene fluoride in the range of 2 to 10% by percentage weight, and alpha alumina in the range of 25% to 75% by percentage weight.

19. An electrochemical device as defined in claim 1, in which said separator comprises a mixture of H_2O in the range of 40% to 60% by percentage weight, polyvinyl alcohol in the range of 40% to 90% by percentage weight, and lithium fluoride in the range of 25% to 75% by percentage weight.

20. An electrochemical device as defined in claim 1, in which said separator is coated with an adhesive which is a mixture of dimethoxyethane in the range of 40% to 95% by

percentage weight, polyvinylidene fluoride/hexafluoropropylene in the range of 5% to 20% by percentage weight, and a lithium based electrolyte in the range of 10% to 45% by percentage weight.

21. An electrochemical device as defined in claim 1, in which said separator is coated with an adhesive which is a mixture of polyvinylidene fluoride in the range of 5% to 50% by percentage weight, and/or a lithium based electrolyte in the range of 50% to 95% by percentage weight.